## CLAIMS

1. A system for narrowing the range of frequency uncertainty of a detected pilot signal, comprising:

means for coherently accumulating samples of the detected pilot signal over a plurality of chips for each of a plurality of frequency hypotheses;

means for measuring energy for said accumulated pilot signal samples;

means for accumulating a plurality of said energy measurements to produce an energy accumulation value (EAV); and

means for determining which of a plurality of frequency hypotheses results in the highest EAV.

2. The system of claim 1, wherein said means for determining comprises:

means of comparing said EAV for a current frequency hypothesis to a maximal EAV of said foregoing frequency hypotheses, wherein if said current frequency hypothesis EAV is greater than said maximal EAV, then:

said maximal EAV is replaced by said current frequency hypothesis EAV for comparison with EAVs produced by future frequency hypotheses; and

said current frequency hypothesis is stored and replaces a frequency hypothesis corresponding to said maximal EAV.

3. The system of claim 1, wherein the detected pilot signal is a spread spectrum signal and further comprising means to despread said pilot signal samples by multiplying said samples by an appropriate PN sequence.

4. The system of claim 3, further comprising means for creating at least two sets of pilot signal samples prior to being multiplied by said PN

sequence, wherein at least one set of said samples is shifted in time relative to another set of said samples.

5. The system of claim 3, further comprising means for creating at least two sets of pilot signal samples prior to being multiplied by said PN sequence, wherein one set of said samples is On-Time and another set of said samples is Late, wherein said Late sample set is shifted in time by _ chip relative to said On-Time sample set.

6. The system of claim 1, further comprising means for shifting the frequency of the detected pilot signal by a current frequency hypothesis, wherein said current frequency hypothesis is one of said plurality of frequency hypotheses.

7. The system of claim 6, further comprising a means for incrementing said current frequency hypothesis over said plurality of frequency hypotheses.

8. The system of claim 6, further comprising means for converting the detected pilot signal from an analog signal to a digital signal prior to shifting the frequency of the detected pilot signal.

9. The system of claim 8, wherein said means for shifting comprises a complex rotator.

10. The system of claim 6 further comprising means for converting the detected pilot signal from an analog signal to a digital signal after shifting the frequency of the detected pilot signal.

11. The system of claim 1 further comprising means for correcting code Doppler timing error.

12. The system of claim 3 further comprising means for correcting code Doppler timing error between said pilot signal samples and said PN sequence.

13. The system of claim 12 wherein said means for correcting comprises means for adjusting the timing of said PN sequence as desired to correct code Doppler timing error.

14. The system of claim 12 wherein said means for correcting comprises:

means for monitoring the accumulation of code Doppler timing error between said pilot signal samples and said PN sequence; and

means for adjusting the timing of said PN sequence as necessary to correct code Doppler timing error.

15. The system of claim 14 wherein said monitoring means is based on a code Doppler error estimate.

16. The system of claim 15 wherein said code Doppler error estimate is based on a final frequency of a frequency bin known to contain the detected pilot signal.

17. The system of claim 15 wherein said code Doppler error estimate is based on a frequency within a frequency bin known to contain the detected pilot signal.

18. The system of claim 7, wherein said means for shifting comprises a complex rotator and a direct digital synthesizer, where said direct digital synthesizer is controlled by a frequency accumulator.

19. A method for narrowing the range of frequency uncertainty of a detected pilot signal, comprising the steps of:

(1) coherently accumulating samples of the detected pilot signal over a plurality of chips for each of a plurality of frequency hypothesis;

(2) measuring energy for said accumulated pilot signal samples;

(3) accumulating a plurality of said energy measurements to produce an energy accumulation value (EAV); and

(4) determining which of a plurality of frequency hypotheses results in the highest EAV.

20. The method of claim 19, wherein step (4) further comprises the step of:

comparing said EAV for a current frequency hypothesis to a maximal EAV of the foregoing frequency hypotheses, wherein if said current hypothesis EAV is greater than said maximal EAV, then:

a) replacing said maximal EAV by said current frequency hypothesis EAV for comparison with EAVs produced by future frequency hypotheses; and

b) storing said current frequency hypothesis and replacing a frequency hypothesis corresponding to said maximal EAV.



21. The method of claim 19, wherein the detected pilot signal is a spread spectrum signal and further comprising the step of despreading said pilot signal samples by multiplying said samples by a PN sequence.

22. The method of claim 21, further comprising the step of creating at least two sets of pilot signal samples prior to being multiplied by said PN sequence, wherein at least one set of said samples is shifted in time relative to another set of said samples.

23. The method of claim 21, further comprising the step of creating at least two sets of pilot signal samples prior to being multiplied by said PN sequence, wherein one set of said samples is On-Time and another set of said samples is Late, wherein said Late sample set is shifted in time by _ chip relative to said On-Time sample set.

24. The method of claim 19, further comprising the step of shifting the frequency of the detected pilot signal by a current frequency hypothesis, wherein said current frequency hypothesis is one of said plurality of frequency hypotheses.

25. The method of claim 24, further comprising the step of incrementing the current frequency hypothesis over said plurality of frequency hypotheses.

26. The method of claim 24, further comprising the step of converting the detected pilot signal from an analog signal to a digital signal prior to shifting the frequency of the detected pilot signal.

27. The method of claim 24, further comprising the step of converting the detected pilot signal from an analog signal to a digital signal after shifting the frequency of the detected pilot signal.

28. The method of claim 19 further comprising the step of correcting code Doppler timing error.

29. The method of claim 21 further comprising the step of correcting code Doppler timing error.

30. The method of claim 29 wherein said step of correcting code Doppler timing error comprises the step of adjusting the timing of said PN sequence as desired to correct code Doppler timing error.

31. The method of claim 29 wherein said step of correcting code Doppler timing error comprises the steps of:

(1) monitoring the accumulation of code Doppler timing error between said pilot signal samples and said PN sequence; and

(2) adjusting the timing of said PN sequence as necessary to correct code Doppler timing error.

32. The method of claim 31 wherein said step of monitoring is based on a code Doppler error estimate.

33. The method of claim 32 wherein said code Doppler error estimate is based on a final frequency of a frequency bin known to contain the detected pilot signal.

34. The method of claim 32 wherein said code Doppler error estimate is based on a frequency within a frequency bin known to contain the detected pilot signal.